USING GIS TO FURTHER THE SUSTAINABLE DEVELOPMENT GOAL 15, LIFE ON LAND.
To know the present – where and how much wood, crop and carbon resources there are.

To see whether the plans are actually put into action, and whether there are any unplanned changes that require adapting to.

To know the future – how the resources change over time and what would be the best way to utilise them sustainably.
COMPANY PROFILE

About Simosol Oy

Simosol Oy is a global leader in customized IT-based solutions for the forestry sector based in Finland. The key services include:

- Mapping and inventory
- IPTIM software family
- Forest valuations
- Carbon services

Supported by our forestry solutions

- 15 million hectares

The value of the assets supported by our forestry solutions

- 40 billion EUR
MAPPING AND INVENTORY
From nation-wide assessments to tree level forest inventories

• Satellite image analysis is the most cost-efficient way to measure forest/biomass resources and how these change.
• Region/nation-wide mapping of resources.
• Defining the most suitable locations for plants considering biomass productivity and logistics.
• Optimization allows an accurate assessment of the feasibility or long-term sustainability of an investment.
MAPPING AND INVENTORY

Tree by tree measurement and planning

• Point clouds from drone measurements ⇒ individual tree detection
• Optimized management plans based on tree level data
MAPPING, INVENTORY (AND OPTIMISATION)

For Metsä, we delivered:

• Mapping of forest resources in 150,000 ha in Russia.
• Mapping of existing road network.
• Inventory of spruce stock using remote sensing and ground reference data.
• Optimized harvest schedule per stand (considering accessibility).
• Optimized road construction and maintenance plan.
MANAGEMENT PLANNING

The need

• For the trees to survive, they need to have value
• The most efficient way to add value to trees is to create a functioning timber market
• Value adding processing becomes critical
MANAGEMENT PLANNING

The need

• Value adding processing needs a predictable wood supply
• We need to bring the manufacturing industry and the small scale forest owners together to create the predictable supply
The Solution

- This interaction can only be scaled cost-efficiently with technology.
- In Finland, companies have been working to show forest owning families what the value of their forests is.
- Light weight way of doing that: use mobile phones to reach the forest owning families.
PRIVATE FOREST OWNER SERVICE
Iptim Mobile
PRIVATE FOREST OWNER SERVICE

eTapio – Mobile Application for Forest Owner Engagement

Set goal

Determine your goal using sliders below. You need to keep positive value of points to set balanced goal.

Treatment of your forest

- Economic values: Not important
- Carbon sequestration: Important
- Recreational value: Not important
- Nature value: Less important

Säynäänsalo estate

The Säynäänsalo is located in Riihimäki, has a total area of 50 ha and contains 10 stands. The predominant Forest Site class usually provides an average growth potential but it is better than the rates found in that region.

Net Income (€)

- Economic
  - Current Plan: 120
  - Alternative: 110
- Recreational
  - Current Plan: 120
  - Alternative: 110

3 479 €
Cash flow in 10 years

Next operations

- Clear felling: 2020
  - +5 000 €
- Planting of pine: 2020
  - -860 €
- Mounding: 2021
  - -460 €

7 from 15 ha are mounded (47%)

Offer details

- Insects detected in stand. I made work item offer for the site and one seedling stand thinning also? Can we do these?
  - Thinning: 2019
    +5000 €
  - Seedling stand thinning: 2019
    -650 €

Order this work
FOREST AND TREES

Automatic forest estate valuation

- Utilizing open source data of forest assets (in Finland)
- The market value is estimated forest inventory data from Metsään.fi service, up-to-date market data, and Simosol's own simulation and optimization software
Automatic forest estate valuation

- Obtains the market value, summation value, and productive value of any forest asset in Finland
- The methods have been audited both in Finland and internationally by leading accountants
- Other applications that utilize open source data: OP Metsä, GEO by Bitcomp, Karttaselain, ProMS Mobile Arbonaut
Monitoring plantations using Sentinel-2 images

Monitoring of replanting due to ant damages

Identification of severe mortality due to drought on shallow soils
RESOURCE MONITORING
Monitoring theft using Sentinel-2 images

• Continuous change detection using Sentinel-2 images. The cycle can be, for example, monthly or annual.

• This is an example of detecting timber theft for an African client project in a bi-monthly change detection service.
RESOURCES MONITORING
Cost-efficient forest verification

- Satellite image based verification of forest canopy cover and identification of potential gaps or other issues with forest quality
- Selection of field visit locations based on the satellite image analysis results
“It is a pleasure to execute forestry IT projects with Simosol. They know from half a word what we want and need, and deliver it”

- Risto Laamanen, Information Systems Manager, Metsähallitus
Thank you!

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